

REMARKS

The Office Action mailed October 21, 2004, has been received and reviewed. Claims 1 through 33 are currently pending in the application, of which claims 1 through 28 are currently under examination. Claims 29 through 33 are withdrawn from consideration as being drawn to a non-elected invention, and have been canceled. Claims 1 through 28 stand rejected. Applicants have amended the specification to correct grammatical, spelling and typographical errors, and respectfully request reconsideration of the application as amended herein. No new matter has been added.

35 U.S.C. § 102(e) Anticipation Rejections**Anticipation Rejection Based on U.S. Publication No. 2003/0096507 to Baker et al.**

Claims 1 through 8, 20 through 23, 25, 27 and 28 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Baker et al. (U.S. Publication No. 2003/0096507). Applicants respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

With respect to claim 1, it is respectfully asserted that, while Baker et al. (hereinafter “Baker”) does form a protective film of a second material over a bare surface of a substrate of a first material, nowhere in Baker is there an express or inherent description of removing the first material and the second material from the substrate *at substantially equal rates*. In fact, there is no teaching whatsoever of even removing the (first) material of the (semiconductor) substrate, but merely of removing one or more films therefrom. The cited paragraph [0021] of Baker reveals only that the second protective film or both the first and second protective films are “optionally” removed from the substrate in step 130. Thus, there is 1) no removal of the first material from the substrate and, consequently, 2) no removal of both the first (substrate) and the second (film) materials at substantially equal rates.

In addition, the step 105 of FIG. 1 referenced by the Examiner refers to formation of

“process” films on the semiconductor substrate (wafer), such being defined as films formed during the fabrication of semiconductor devices or integrated circuits, while step 110 refers to the formation of *different*, “protective” films on the frontside and backside of the wafer and not of bonding of the process film thereto. Thus, the reference does not teach applying a layer of a second material to a bare surface of a substrate, followed by bonding of the layer of second material, as claimed. Reconsideration and withdrawal of the rejection is respectfully solicited.

Claims 2-8, 20-23, 25, 27 and 28 are allowable as depending from claim 1.

Further with respect to claim 2, the disclosure of cited paragraph [0021] of the reference is limited to removal processes for removing one or more films, and not the first material of the substrate. The disclosed removal methods, including wet and dry etching, chemical-mechanical-polishing (CMP) and grinding, but only as applied to the films on the semiconductor substrate and not to the substrate itself.

Further with respect to claim 3, the disclosure of cited paragraph [0021] is, again, limited to removal of films. Nowhere is there a disclosure of planarization used to substantially reduce an initial thickness of the substrate.

Further with respect to claim 4, the disclosure of cited paragraph [0021] is, again, limited to removal of films. Nowhere is there a disclosure of removing the first material and the second material comprising substantially reducing an initial thickness of the substrate.

Further with respect to claim 22, the disclosure of cited paragraph [0021] is, again, limited to removal of films. There is no description of the removal of substrate (first) material, but only of film (second) material in the reference.

Further with respect to claim 25, the disclosure of cited paragraph [0016] merely describes acid treatments, solvent treatments, oxidation/reduction treatments, and etch treatments. There is no description of those treatments containing some “substantial” etching of equal rates of compatible materials, nor of treatment of compatible materials *per se*.

Further with respect to claims 27 and 28, the disclosure of cited paragraphs [0016] and [0021] is, again, limited to removal of films. No removal of substrate material is described.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Publication No. 2003/0096507 to Baker et al. as applied to

claims 1-8, 20-23, 25, 27, 28 above, and further in view of Japanese Publication No. 359104523 to Imai

Claims 9 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Baker et al. (U.S. Publication No. 2003/0096507) as applied to claims 1-8, 20-23, 25, 27, 28 above, and further in view of Imai (JP Publication No. 359104523). Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 9 and 10 are improper because Imai fails to cure the deficiencies in the description provided by Baker. Imai merely teaches the use of an epoxy adhesive to adhere a crystal substrate to a sapphire substrate. Further, there would be no motivation to utilize an epoxy adhesive of Imai as a protective film for the purposes of Baker as Baker utilizes protective films which are typically removed from his substrate. Even assuming a protective film of Baker remains on the substrate, there is no indication in Baker that adhering anything to a substrate as being processed according to his methods would be desirable.

Obviousness Rejection Based on U.S. Publication No. 2003/0096507 to Baker et al. as applied to claims 1-8, 20-23, 25, 27, 28 above, and further in view of U.S. Publication No. 2004/0110010 to Buchwalter et al.

Claims 11, and 16 through 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Baker et al. (U.S. Publication No. 2003/0096507) as applied to claims 1-8, 20-23, 25, 27, 28 above, and further in view of Buchwalter et al. (U.S. Publication No. 2004/0110010). Applicants respectfully traverse this rejection, as hereinafter set forth.

As in the case of Imai with respect to claims 9 and 10, Buchwalter et al. fails to cure the deficiencies in Baker, the primary reference. Buchwalter et al. merely teaches the use of, and application techniques for, a “reworkable” thermoset epoxy for use as a wafer level underfill. As with Imai, there is no motivation for combining Baker with Buchwalter et al., as the films used by Baker are for a different purpose than the epoxy underfill taught by Buchwalter et al.

Obviousness Rejection Based on U.S. Publication No. 2003/0096507 to Baker et al. as applied to claims 1-8, 20-23, 25, 27, 28 above, and further in view of U.S. Patent No. 6,235,387 to Bennett et al.

Claims 12 through 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Baker et al. (U.S. Publication No. 2003/0096507) as applied to claims 1-8, 20-23, 25, 27, 28 above, and further in view of Bennett et al. (U.S. Patent No. 6,235,387). Applicants respectfully traverse this rejection, as hereinafter set forth.

Bennett et al. fails to cure the deficiencies in the teachings of Baker. Bennett et al. merely teaches a semiconductor processing tape which may be useful in wafer grinding (when applied to the front or active surface of a wafer) or in dicing (when applied to the back surface, or back side, of a wafer. The use of the Bennett et al. tape would not be motivated for the Baker process as Baker employs destructive film removal techniques which would not require the beneficial properties of the Bennett et al. tapes.

Obviousness Rejection Based on U.S. Publication No. 2003/0096507 to Baker et al. as applied to claims 1-8, 20-23, 25, 27, 28 above, and further in view of Stanley Wolf et al. in Silicon Processing for the VLSI Era

Claims 24 and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Baker et al. (U.S. Publication No. 2003/0096507) as applied to claims 1-8, 20-23, 25, 27, 28 above, and further in view of Stanley Wolf et al. in Silicon Processing for the VLSI Era. Applicants respectfully traverse this rejection, as hereinafter set forth.

Wolf fails to remedy the deficiencies in the teachings of Baker, in that Baker already teaches the use of chemical-mechanical-polishing for film removal. With respect to claim 24, there is no teaching or recognition in either reference of the desirability of removing substrate

(first) material prior to application of a second material to the substrate. With respect to claim 26, neither Baker nor Wolf teaches the removal of two materials from a substrate by planarization, nor the removal of two materials at substantially equal rates by planarization or otherwise.

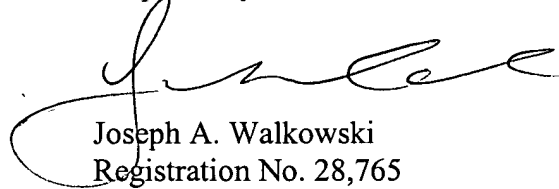
ENTRY OF AMENDMENTS

The amendments to the specification as set forth above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application.

CONCLUSION

Claims 1 through 28 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,



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